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BHCTP Monthly Discharge Monitoring Report

Month:	July-17	
Facility:	Central Treatment Plant	
Location:	Bunker Hill Superfund Site	
Contract Number:	W912DW-16-C-0012	Amec Foster Wheeler

Total Flow For The Month From 006 Outfall:	71,196,000	gallons
Sludge pumping to CIA sludge pond:	2,130,000	gallons
Total Flow From Kellogg Tunnel:	73,144,700	gallons

Percent of Influent Successfully Treated: 100.0%

13 sample days * 6 parameters (Pb, Cd, Zn, Mn, TSS & pH) = 78 potential exceedances
78 - 0 exceedances = 78 78/78 = 100%

Results of Sampling Efforts:

All sampling has been performed in accordance with specifications and the Sampling and Analysis Plan.

Performance Evaluation (PE) sampling was not performed for this reporting period.

Trip blank and rinsate samples were also taken, with the results being reported on the 'PTM-004,RB,TB' page of this DMR.

Highlights of Plant Maintenance and/or Plant Optimization:

07-03-17 Performed monthly fire extinguisher inspection. All CTP fire extinguishers are fully charged and in good working condition at this time.

07-03-17 Performed monthly pump and motor inspection. All CTP pumps and motors are in good condition at this time.

07-07-17 06:30 Lime Slaker B was removed from service. Lime feed motor overload tripped the motor circuit. Lime slaker A was placed into service until operators had time to investigate. 09:00 operators manually operated the lime feed auger on lime feed system B to dislodge the lime stone blockage. Lime system B was placed back into service. Lime system A was placed back into standby mode. Approximately 30 tons of the large lime stone remains in Silo B at this time. Operators are attempting to use all of the 2.5" minus lime in silo B.

07-07-17 Received 39.4 tons of 3/8" minus pebble lime from Pete Lien & Sons. Placed into lime silo B.

07-11-17 Operators discovered a failed flocculent mixing water pipe section located in the Polishing Pond pump house. The pipe section was removed and delivered to Mine Fabrication to be used as a fabrication pattern. Mine fab will construct a new pipe section that includes vic fitting groves and reducer from 3" to 1.5". Pictures have been and submitted to the OMER Manager.
CTP operating staff considers this an emergency repair as the pipe section provides flocculent mixing water.

07-12-17 Received 35.0 tons of 3/8" minus pebble lime from Pete Lien & Sons. Placed into lime silo B.

07-13-17 A pre pigging flow reduction letter was presented to the mine operator. The letter requested a 2.5 day continuous low flow period for the annual video & pigging event. The mine operator stated they could provide daily flow reductions for each of the 3 days. Daily flow reductions will be sufficient to perform the annual video inspections and AMD line cleaning event. Daily project start times will be determined by KT flow.
Video and pigging activities can not be performed until the KT flow decreases to approximately 900 gpm.
Current KT flow is 1700 gpm consisting of an estimated 833 gpm of gravity flow and 867 gpm of mine pool pump flow.

07-14-17 Terragraphics began disposing of CDA Trust well purge water at the lined storage pond. A waste manifest was submitted to the CTP LWTPO Thursday July 13, 2017.

A waste disposal log including total gallons will be submitted at the completion of the well purge project.

07-18-17 11:15 Reduced the process pH set point from 8.50 to 8.40 in response to the treated outfall decreasing zinc levels The process pH set point will be increased to 8.50 during KT low flow periods as required.

07-18-17 Performed lock out and tag out on the rapid mix drive, slaker A, lime slurry tank mixer, and slaker B. Performed six month oil changes on the above listed gear units.

07-20-17 Completed the annual Clarifier drive unit oil change and six month plant component oil changes. The maintenance report including all oil changes was submitted to the COR on July 20, 2017 with the daily QC report.

07-25-17 Operators performed the monthly full load emergency generator run test. The emergency generator operated all CTP components for one hour as programmed with no issues or errors to report.

07-26-17 Mine Fabrication completed the construction of the #2 lime slurry return pipe. CTP operators tested the lime slurry return line and placed it into service as the primary lime slurry loop pipeline.

07-27-17 Discussed the pigging event KT flow reduction request with Dave Kriedman at the Bunker Hill Mine. Dave agreed that the flow will be reduced daily August 1st, 2nd and 3rd as requested. Also discussed the pump schedule with the miner (Mitch) that will be responsible for the pump flows next week.

07-31-17 Performed monthly reset of the KT and treated outfall flow meters. Documented monthly totals on the KT & 006 flow page of this report.

07-31-17 CIA sludge pond staff gauge reading 8.75'.

- The Kellogg Tunnel discharge flow increased by 19% from July 2016, from 56.5 mg to 69.4 mg.

- The Kellogg Tunnel zinc concentration increased by 17% from July 2016, from an average of 81 mg/L to 97.2 mg/L.

- The CTP operating pH set point was reduced from 8.5 to 8.4 during this reporting period.

- The flocculent dosage remained at approximately 1.6 PPM during this reporting period.

- The CTP sludge recycle rate remained at 400 gpm.

- CTP operators received no off-shift auto dialer call-out alarms.

- CTP operators performed two pumping events from the Lined Pond.

- CTP operators verified Aeration Basin pH probe and grab sample values twice per day.

- CTP operators performed daily inspections of the lime slurry holding tank, with no leaks or increased corrosion found this month.

No significant lessons to report for last month.

Lessons Learned

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2017	7	1	2017	7	31

PARAMETER		Quantity or Loading			Quality or Concentration					
		MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	MINIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	FREQUENCY OF ANALYSIS	SAMPLE TYPE
pH	Sample Measurement				7.06		7.24		Continuous	Meter
	Permit Required				6.0		10.0			
Flow Thru Treatment Plant	Sample Measurement	2.20	2.58	mgd						
	Permit Required		Daily							
Lead Total - Pb Effluent	Sample Measurement	0.05	0.06	lbs/day		0.003	0.003	mg/L	three samples/ week	Comp 24
	Permit Required	14.8	37.0			0.30	0.60	mg/L		
Zinc Total - Zn Effluent	Sample Measurement	4.15	8.30	lbs/day		0.23	0.39	mg/L	three samples/ week	Comp 24
	Permit Required	36.2	91.3			0.73	1.48	mg/L		
Cadmium - Cd Effluent	Sample Measurement	0.11	0.171	lbs/day		0.006	0.008	mg/L	three samples/ week	Comp 24
	Permit Required	2.40	6.10			0.050	0.100	mg/L		
Manganese - Mn Effluent	Sample Measurement	182	310	lbs/day		4.3	15.5	mg/L	three samples/ week	Comp 24
	No Permit Required					N/A	N/A	mg/L		
Total Suspended Solids - TSS	Sample Measurement	12.9	21	lbs/day		0.8	1.2	mg/L	three samples/ week	Comp 24
	Permit Required	985	1907			20	30	mg/L		

PREPARED BY: GARY FULTON

REVIEWED BY: BRIAN JOHNSON

NPDES DISCHARGE POINT 006
CENTRAL TREATMENT PLANT
MONTH: Jul-17

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	FLOW	TSS		LOADING
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1		0.056		3.88		0.12		186		2.58		8.61	3.91
2		0.053		3.67		0.11		176		2.44		8.14	3.69
3	0.0026	0.056	0.180	3.88	0.0054	0.12	8.64	186	7.20	2.58	0.40	8.61	3.91
4		0.052		3.60		0.11		173		2.40		7.99	3.63
5	0.0026	0.052	0.155	3.12	0.0052	0.10	8.29	167	7.19	2.41	0.80	16.1	7.30
6		0.054		3.19		0.11		171		2.47		16.5	7.47
7	0.0026	0.035	0.154	2.09	0.0047	0.06	8.00	109	7.19	1.63	0.80	10.9	4.94
8		0.035		2.09		0.06		109		1.63		10.9	4.94
9		0.028		1.68		0.05		87.4		1.31		8.74	3.96
10	0.0026	0.027	0.330	3.41	0.0071	0.07	3.30	34.1	7.20	1.24	0.60	6.19	2.81
11		0.043		5.41		0.12		54.1		1.96		9.83	4.46
12	0.0026	0.055	0.393	8.30	0.0081	0.17	4.73	100	7.19	2.53	0.60	12.7	5.74
13		0.054		8.21		0.17		99		2.50		12.5	5.68
14	0.0026	0.053	0.207	4.23	0.0058	0.12	8.25	169	7.06	2.45	0.80	16.4	7.42
15		0.053		4.21		0.12		168		2.44		16.3	7.39
16		0.054		4.28		0.12		170		2.48		16.5	7.49
17	0.0032	0.063	0.146	2.87	0.0047	0.09	9.93	195	7.24	2.35	0.80	15.7	7.12
18		0.064		2.90		0.09		197		2.38		15.9	7.21
19	0.0026	0.053	0.153	3.10	0.0047	0.10	11.2	227	7.14	2.43	0.80	16.2	7.36
20		0.045		2.66		0.08		194		2.08		13.9	6.30
21	0.0032	0.062	0.216	4.18	0.0060	0.12	15.5	300	7.14	2.32	0.60	11.6	5.27
22		0.059		3.98		0.11		286		2.21		11.1	5.02
23		0.064		4.31		0.12		310		2.39		12.0	5.44
24	0.0026	0.050	0.230	4.41	0.0065	0.12	15.4	295	7.19	2.30	0.80	15.3	6.96
25		0.033		2.94		0.08		197		1.53		10.2	4.63
26	0.0026	0.033	0.242	3.11	0.0061	0.08	12.2	157	7.18	1.54	1.20	15.4	6.99
27		0.045		4.18		0.11		211		2.07		20.7	9.40
28	0.0026	0.052	0.326	6.53	0.0073	0.15	9.50	190	7.19	2.40	0.60	12.0	5.45
29		0.052		6.56		0.15		191		2.41		12.1	5.47
30		0.053		6.61		0.15		193		2.43		12.2	5.52
31	0.0026	0.051	0.257	5.04	0.0067	0.13	18.2	357	7.17	2.35	1.00	19.6	8.89
Total	0.035	1.539	2.989	128.615	0.078	3.401	133.140	5656.563	93.280	68.235	9.800	400.764	181.753
Sample Events	13	31	13	31	13	31	31	31	13	31	13	31	31
Daily Average	0.003	0.050	0.230	4.15	0.006	0.110	4.3	182	7.18	2.20	0.75	12.9	5.86
Lab Detection Limit	**0.003**		**0.004**		**0.001**		**0.004**		**0.01**		**0.800**		

MIN	0.003	0.027	0.146	1.682	0.005	0.051	3.300	34.060	7.060	1.237	0.400	6.193	2.808
MAX	0.003	0.064	0.393	8.297	0.008	0.171	15.500	309.632	7.240	2.580	1.200	20.729	9.401

Notes:
(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) in lbs/day
(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) in kg/day
verified by Brian Johnson, 08/15/17

KELLOGG TUNNEL DISCHARGE
CENTRAL TREATMENT PLANT
MONTH: Jul-17
Data from SVL

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH s.u.	006 FLOW	TSS		
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	***SVL Lab***	mgd	mg/L	lbs/day	kg/day
1		13.87		2,175		4.65		2,063		2.58		3294	1494
2		13.11		2,057		4.40		1,951		2.44		3115	1413
3	0.644	13.87	101	2,175	0.216	4.65	95.8	2,063	2.82	2.58	153	3294	1494
4		12.87		2,019		4.32		1,915		2.40		3058	1387
5		12.95		2,031		4.34		1,927		2.41		3077	1395
6	0.684	14.09	93.6	1,927	0.207	4.26	91.5	1,884	2.84	2.47	122	2512	1139
7		9.304		1,273		2.82		1,245		1.63		1659	753
8		9.304		1,273		2.82		1,245		1.63		1659	753
9		7.472		1,022		2.26		1,000		1.31		1333	604
10	0.602	6.213	155	1,600	0.373	3.85	42.4	438	2.75	1.24	52	537	243
11		9.865		2,540		6.11		695		1.96		852	386
12		12.71		3,272		7.88		895		2.53		1098	498
13	0.631	13.18	93.0	1,943	0.191	3.99	98.0	2,047	2.91	2.50	118	2465	1118
14		12.90		1,901		3.91		2,004		2.45		2413	1094
15		12.85		1,894		3.89		1,995		2.44		2403	1090
16		13.03		1,921		3.95		2,024		2.48		2437	1105
17	0.730	14.33	93.8	1,841	0.183	3.59	105	2,061	2.98	2.35	176	3455	1567
18		14.51		1,865		3.64		2,087		2.38		3498	1587
19		14.80		1,902		3.71		2,129		2.43		3569	1619
20	0.629	10.92	96.0	1,666	0.180	3.12	106	1,840	3.00	2.08	113	1961	890
21		12.18		1,859		3.48		2,052		2.32		2188	992
22		11.60		1,770		3.32		1,955		2.21		2084	945
23		12.57		1,918		3.60		2,117		2.39		2257	1024
24	0.602	11.54	81.7	1,567	0.167	3.20	87.0	1,668	2.91	2.30	162	3106	1409
25		7.686		1,043		2.13		1,111		1.53		2068	938
26		7.736		1,050		2.15		1,118		1.54		2082	944
27	0.589	10.17	75.9	1,311	0.159	2.75	89.6	1,548	2.95	2.07	111	1917	870
28		11.80		1,520		3.18		1,795		2.40		2223	1008
29		11.85		1,526		3.20		1,802		2.41		2232	1012
30		11.94		1,539		3.22		1,817		2.43		2251	1021
31	0.657	12.88	85.2	1,670	0.159	3.12	96.8	1,898	2.89	2.35	178	3489	1582
Total	5.77	364.09	875.20	55070.25	1.84	115.50	812.10	52386	26.05	68.24	1185.00	73589	33374
Sample Events	9	31	9	31	9	31	9	31	9	31	9	31	31
Daily Average	0.641	11.7	97.2	1,776	0.204	3.73	90.2	1,690	2.89	2.20	132	2374	1077

Notes:
(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) lbs/day
(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) kg/day
verified by Brian Johnson, 08/15/17

PTM Effluent at Lined Storage Pond **Month: Jul-17**
CENTRAL TREATMENT PLANT

DATE	LEAD mg/L	ZINC mg/L	CADMIUM mg/L	pH s.u. CTP Lab	TSS mg/L
07/06/17	0.0050	11.4	1.35	6.73	0.6
07/20/17	0.0032	11.1	1.36	6.70	0.2

RINSATE AND TRIP BLANKS **Month: Jul-17**
CENTRAL TREATMENT PLANT

Rinsate and Trip Blank samples will be taken approximately every 20 QC events, or one each per month.

LOCATION Rinsate & Trip Blank	DATE	SAMPLE	LEAD mg/L	ZINC mg/L	CADMIUM mg/L
PTM Discharge		RB-07-06-17	<0.008	<0.010	<0.002
Trip Blank (D.I.water)		TB-07-06-17	<0.008	<0.010	<0.002

verified by Brian Johnson, 08/15/17

Bunker Hill Central Treatment Plant

Daily log July 2017

				AERATION BASIN					CLARIFIER						DISCHARGE 006								RECYCLE SG		LIME SLURRY			SLUDGE PUMP		POND PUMP		SLUDGE GUN TEST		LINED POND
		INFLUENT KT			a.m.		p.m.		a.m.		p.m.				a.m.		p.m.		DO	1/wk							Injection Valve						ESTIMATED
DATE	Operators	GPM	pH	SET	pH1	grab	pH1	grab	pH2	grab	pH2	grab	TURB	TEMP	pH3	grab	pH3	grab	PPM	TEMP	TURB	FLOW	SG	GPM	SG	%solid	Closed/Open	pump #	min	ON	OFF	10' Out	20' Out	Elevation (mg)
7/1	GC			8.5	8.5	8.5	8.5	8.5	8.0	8.2	8.3	8.1	0.62	60	7.3	7.4	7.5	7.4			0.62	2.58	1.053	400	1.072	11.1	123/35	3	120					2269.0 (1.0mg)
7/2	SB			8.5	8.5	8.5	8.6	8.6	8.0	8.2	8.2	8.2	0.63	62	7.4	7.4	7.6	7.5			0.57	2.44	1.048	400	1.070	10.8	160/35	3	120					2269.0
7/3	GF,SB	1800	2.75	8.5	8.5	8.5	8.5	8.4	8.0	8.2	8.2	8.1	0.67	60	7.4	7.4	7.4	7.4			0.59	2.58	1.051	400	1.071	11.0	179/35	3	130					2269.0
7/4	GF			8.5	8.5	8.5	8.5	8.5	8.1	8.0	8.1	8.0	0.65	61	7.4	7.4	7.4	7.3			0.60	2.40	1.054	400	1.066	10.2	224/35	3	120					2269.0
7/5	GF,SB,GC			8.5	8.5	8.5	8.6	8.5	8.0	8.1	8.1	8.2	0.75	59	7.4	7.3	7.6	7.3	9.5	7.3c	0.63	2.41	1.050	400	1.071	11.0	225/30	3	120					2269.0
7/6	GF,SB,GC	1646	2.70	8.5	8.5	8.5	8.5	8.5	8.0	8.2	8.1	8.0	0.59	60	7.2	7.3	7.6	7.3			0.50	2.47	1.050	400	1.071	11.0	185/30	3	120			10'-10"	20'-8"	2269.0
7/7	GF,GC			8.5	8.7	8.6	8.5	8.4	8.0	8.0	8.1	8.1	0.64	62	7.4	7.5	7.4	7.5			0.55	1.63	1.037	400	1.069	10.7	310/30	3	60	#3-04:50	10:50			2269.0
7/8	GC			8.5	8.5	8.4	8.6	8.6	8.1	8.1	8.1	8.0	0.46	61	7.4	7.5	7.4	7.3			0.58	1.63	1.041	400	1.070	10.8	313/30	3	60					2268.5 (.75mg)
7/9	SB			8.5	8.5	8.5	8.5	8.4	8.0	8.1	8.1	8.1	0.65	63	7.2	7.3	7.4	7.4			0.52	1.31	1.041	400	1.069	10.7	313/30	3	60					2268.5
7/10	GF,SB	833	2.55	8.5	8.5	8.5	8.4	8.4	8.0	8.0	7.8	7.9	0.70	59	7.2	7.3	7.2	7.2			0.52	1.24	1.041	400	1.020	3.2	310/30	3	60					2268.5
7/11	GF,SB,GC			8.5	8.6	8.5	8.6	8.6	7.9	8.1	8.1	8.1	0.47	59	7.1	7.3	7.4	7.4			0.42	1.96	1.051	400	1.064	10.0	159/30	3	120					2268.5
7/12	GF,GC			8.5	8.5	8.5	8.5	8.4	8.1	8.2	8.1	8.2	0.55	58	7.3	7.5	7.6	7.4	9.70	7.3c	0.48	2.53	1.055	400	1.067	10.4	169/30	3	120					2268.5
7/13	GF,SB,GC	1700	2.73	8.5	8.5	8.5	8.6	8.6	8.0	7.9	8.3	8.2	0.60	59	7.3	7.3	7.6	7.4			0.50	2.50	1.050	400	1.071	11.0	167/30	3	120					2268.5
7/14	GF,GC			8.5	8.6	8.5	8.6	8.6	8.2	8.1	8.2	8.2	0.60	60	7.4	7.4	7.7	7.4			0.43	2.45	1.050	400	1.072	11.1	172/30	3	120					2268.5
7/15	GC			8.5	8.5	8.6	8.5	8.5	8.3	8.2	8.2	8.1	0.40	62	7.4	7.6	7.5	7.5			0.41	2.44	1.048	400	1.072	11.1	177/30	3	120					2268.5
7/16	SB			8.5	8.5	8.5	8.5	8.5	8.2	8.1	8.2	8.2	0.54	60	7.5	7.3	7.6	7.4			0.40	2.48	1.048	400	1.070	10.8	171/30	3	120					2268.5
7/17	GF,SB	1700	2.75	8.5	8.5	8.5	8.4	8.4	8.1	8.1	8.2	8.1	0.65	59	7.5	7.3	7.5	7.4			0.58	2.35	1.047	400	1.069	10.7	165/30	3	120					2268.5
7/18	GF,SB,GC			8.4	8.5	8.5	8.4	8.4	8.2	8.1	8.2	8.0	0.55	59	7.4	7.3	7.5	7.3			0.43	2.38	1.048	400	1.066	10.2	162/30	3	120					2268.5
7/19	GF,SB,GC			8.4	8.4	8.5	8.3	8.3	8.0	8.1	8.1	8.1	0.65	63	7.2	7.3	7.4	7.3	9.67	9.4c	0.50	2.43	1.053	400	1.066	10.2	165/30	3	120					2265.0
7/20	GF,SB,GC	1666	2.78	8.4	8.4	8.4	8.3	8.3	7.9	8.0	8.2	8.1	0.86	63	7.2	7.3	7.5	7.4			0.66	2.08	1.048	400	1.067	10.4	165/30	3	92					2269.0 (1.0 mg)
7/21	GF,GC			8.5	8.4	8.4	8.5	8.5	8.0	8.0	8.0	8.2	0.60	60	7.3	7.2	7.3	7.2			0.50	2.32	1.048	400	1.066	10.2	162/30	3	120					2269.0
7/22	GC			8.4	8.5	8.5	8.5	8.5	7.9	8.1	8.0	8.0	0.45	57	7.1	7.3	7.1	7.4			0.48	2.21	1.047	400	1.065	10.1	150/30	3	120					2269.0
7/23	SB			8.4	8.4	8.4	8.4	8.4	7.9	8.1	8.1	8.1	0.60	62	7.1	7.3	7.5	7.3			0.51	2.39	1.046	400	1.065	10.1	166/30	3	120					2269.0
7/24	GF,SB	1670	2.80	8.4	8.4	8.4	8.5	8.5	8.8	8.0	8.2	8.0	0.60	62	7.1	7.2	7.4	7.1			0.50	2.30	1.050	400	1.065	10.1	169/30	3	120					2269.0
7/25	GF,GC			**8.5**	8.5	8.5	8.6	8.6	7.9	8.0	8.2	8.2	0.76	58	7.0	7.4	7.3	7.3			0.74	1.53	1.033	400	1.065	10.1	311/30	3	60	#3-08:00	12:30			2269.0
7/26	GF,GC			**8.5**	8.5	8.5	8.4	8.4	8.1	8.1	8.1	8.0	0.59	58	7.1	7.4	7.3	7.3	9.75	7.5c	0.48	1.54	1.034	400	1.065	10.1	330/30	3	60					2268.5 (.75mg)
7/27	GF,GC	1660	2.95	8.4	8.4	8.4	8.4	8.4	8.0	8.0	8.1	8.0	0.76	56	7.1	7.5	7.3	7.2			0.61	2.07	1.050	400	1.065	10.1	146/30	3	130					2268.5
7/28	GC			8.4	8.4	8.4	8.4	8.4	8.1	7.9	8.1	8.0	0.42	57	7.3	7.5	7.3	7.3			0.40	2.40	1.050	400	1.066	10.2	149/30	3	120					2268.5
7/29	GC			8.4	8.4	8.4	8.4	8.4	8.0	8.1	8.1	8.1	0.45	60	7.3	7.4	7.4	7.3			0.49	2.41	1.044	400	1.065	10.1	149/30	3	90					2268.5
7/30	GF			8.4	8.4	8.4	8.4	8.4	8.1	8.0	8.2	8.2	0.60	61	7.3	7.3	7.3	7.4			0.50	2.43	1.053	400	1.064	10.0	152/30	3	120					2268.5
7/31	GF,SB	1690	3.00	8.4	8.4	8.4	8.4	8.4	8.1	8.0	8.2	8.1	0.65	61	7.3	7.2	7.2	7.2			0.60	2.35	1.049	400	1.064	10.0	152/30	3	120					2268.5 (.75mg)
																			1/wk	1/wk													
Averages:				8.46	8.48	8.47	8.48	8.46	8.07	8.07	8.13	8.08	**0.60**	60.0	7.27	7.35	7.43	7.34	PPM	*c	0.53	2.20	1.05						107					
Notes:																													3322				
	07-06-17 Direct feed flow decreased from approx. 1700 gpm to approx, 900 gpm at 12:00.																												1,993,200	Gallons			
	07-07-17 04:50-10:50 KT low flow of approximately 880 gpm diverted to the lined storage pond. #3 L.P. pump activated.																																
	07-10-17 06:30 Lime slurry % solids decreased to 3.2%. Slaker B was removed from service, Slaker A placed into service. 09:00 Slaker B in service, Slaker A in standby mode.																																
	07-10-17 16:30 KT flow increased from 833 gpm to approximately 1850 gpm. KT flow is estimated to be 833 gpm gravity flow and 1017 gpm mine pool pumped flow.																																
	07-13-17 06:30 KT flow decreased from approximately 1850 gpm to 1700 gpm. The KT flow of 1700 gpm is assumed to be a combination of 830 gpm gravity flow and 870 gpm of mine pool pumped flow.																																
	07-18-17 11:15 Decreased the process pH set point from 8.50 to 8.40 in response to the decreased zinc levels of the treated outfall. Process pH will be increased to 8.50 during KT low flow periods.																																
	07-19-17 07:30-11:00 Diverted the KT flow of approximately 1700 gpm to the lined storage pond. Removed the Aerator and Clarifier from service for six month and annual oil changes.																																
	07-21-17 11:30 KT flow decreased from approximately 1670 gpm to approximately 800 gpm. Increased pH set point to 8.50.																																
	07-21-17 17:00 KT flow increased from approximately 800 gpm to approximately 1670 gpm. decreased pH set point to 8.40.																																
	07-24-2017 10:00 Clarifier pH probe was replaced with a new pH probe due to the failure of the old pH probe.																																
	07-24-17 12:00 KT flow decreased from 1670 gpm to approximately 820 gpm.																																
	07-25-17 08:00 Diverted KT flow of approximately 820 gpm to the lined storage pond, activated the #3 lined pond pump.																																
	07-26-17 10:00 Switched from lime loop #1 to lime loop #2.																																
	07-26-17 12:30 KT flow increased from approximately 880 gpm to approximately 1660 gpm.																																

2017-May 03 to 2018-May 02 BHCTP LIME USAGE AFW

	Silo A						Silo B						Total	
Month	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Net Tons	Tons/Day
May 3-May 31	16.00	16.00	0.0	0.0	0.00	0.0	14.00	7.30	6.7	36.1	183.79	219.9	219.9	7.58
June 1-June 30	16.00	11.40	4.6	24.8	83.42	108.2	7.30	13.20	-5.9	-31.8	67.10	35.3	143.5	4.78
July 1-July 31	11.40	11.00	0.4	2.2	0.00	2.2	13.20	8.50	4.7	25.3	114.10	139.4	141.6	4.57
			0.0	0.0	0.00	0.0			0.0	0.0	0.00	0.0	0.0	0.00
			0.0	0.0	0.00	0.0			0.0	0.0	0.00	0.0	0.0	0.00
			0.0	0.0					0.0	0.0	0.00	0.0	0.0	0.00
				Silo A	**83.42**					**Silo B**	**364.99**		505.0	
						Tdl Tons Purchased		**448.41**					**Average**	**6.18**

NOTES:
May 3, 2017 A= 16.0 B = 14.0 AFW Beginning Levels
08-01-16 Placed slaker/silo A into service, slaker/silo B in six month standby mode.
01-25-17 Placed slaker/silo B into service, slaker/silo A in six month standby mode.
04-20-17 Placed 4.9 ton into silo A and 31.1 ton into silo B, fill in preparation for contract changeover.
05-23-17 Received the initial Pete Lien & Sons lime delivery of 39.20 tons - Silo B
05-30-17 Received Pete Lien & Sons lime delivery of 37.50 tons - Silo B
06-01-17 Received Pete Lien & Sons lime delivery of 39.0 tons - Silo B
06-04-17 Removed Lime System B (Slaker B) from service and placed Lime System A into service. Lime System B in fail mode (lime feed auger has failed).
06-04-17 12:30 Operator measured the void space in Silo B at 9.0'. The silo B level indicator display reading at this time was 10.7'.
06-06-17 28.1 Tons placed into Silo B, **11.3 Tons placed into Silo A - Silo B Cone/Stack issues prevented loading entire truck into Silo B (15.1 ft)**
06-07-17 11:00 Placed slaker/silo A into service, placed slaker/silo B into standby mode
06-13-17 Drained and cleaned slaker B. 06-14-17 Drained and cleaned slaker A.
06-28-17 08:00 Slaker A removed from service, slaker B placed into service. Operators replaced the #2 lime loop pressure valve rubber body and slaker A drive shaft packing.
07-10-17 06:30 Slaker B removed from service due to a lime feed issue. Slaker A placed into service. Operators will investigate when time allows.

Lime Daily Use - 7 Days

	Silo A						Silo B						Total	
	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Net Tons	Tons/Day
7/24-7/31	11.00	11.00	0.0	0.0		0.0	9.00	4.80	4.2	22.6	0.00	22.6	22.6	3.23

Lime Silo A Depth Readings

Date	Prior	After	Tons Received	Tons/ft
6/6/2017	14.6	16.7	11.30	5.38
6/15/2017	9.5	14.6	36.02	7.06
6/22/2017	10.1	15.2	36.10	7.08

Lime Silo B Depth Readings

Date	Prior	After	Tons Received	Tons/ft
5/22/2017	7.7	11.4	39.2	10.59
5/30/2017	3.5	7.5	37.5	9.38
6/1/2017	6.5	13.3	39.0	5.74
6/5/2017	10.8	15.1	28.1	6.53
7/10/2017	6.6	11.2	39.6	8.61
7/12/2017	10.5	17.0	35.0	5.38
7/31/2017	4.8	8.5	39.5	10.68

CENTRAL TREATMENT PLANT **MISCELLANEOUS FLOWS**

Month : **Jul-17**

Date	**KT Flow Meter Reading**
6/30/2017	0
7/31/2017	73,144,700
Total	73,144,700

Date	**006 Flow Meter Reading**
6/30/2017	0
7/31/2017	71,196,000
Total	71,196,000

Lined Storage Pond Influent Flows

Sweeny Pump Station Reading

Date	#1 Pump	620 gpm	#2 Pump	500 gpm
6/30/2017	170.0	Hours	785.0	Hours
7/31/2017	170.0	Hours	785.0	Hours
Total Hours	0.0	Hours	0.0	Hours
Total Flow for 004/Sweeny For The Month =			0	Gallons

PTM Discharge Flow

Date	Flow (gpm)
07/06/17	10.0
07/20/17	7.0

Date	**Lined Storage Pond Water Level**			
6/30/2017	1,000,000	gal	Elev. =	2269.0
7/31/2017	750,000	gal	Elev. =	2268.5

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Old Mine Line Discharge Flow

Date	Flow (gpm)
NA	NA

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan.	61,000,000	61,677,510	54,606,100	53,066,890	52,223,080	53,150,000	56,050,900	56,281,000	53,465,820	50,936,960
Feb.	57,600,000	45,584,000	52,840,000	46,493,470	48,306,920	49,860,000	51,188,000	50,511,300	49,282,209	48,146,111
March	60,730,000	57,740,360	50,452,060	60,162,290	59,852,720	58,073,000	56,332,830	65,443,650	54,578,130	61,712,540
April	68,680,000	54,846,000	65,583,230	63,335,350	50,715,310	53,775,350	72,039,280	66,636,500	61,690,530	63,055,350
May	97,719,900	57,501,901	76,082,410	63,335,350	53,245,000	54,181,650	72,027,000	63,203,308	86,680,760	70,233,580
June	69,800,000	55,835,590	67,299,960	59,532,434	50,451,170	51,750,000	68,385,600	57,981,410	82,622,590	64,623,180
July	63,698,850	53,652,330	64,820,120	66,252,746	56,538,980	55,255,000	64,054,000	58,282,900	66,324,500	61,535,000
Aug.	66,707,120	45,289,000	58,212,940	62,074,750	52,002,140	49,970,000	64,621,000	55,335,900	65,168,620	56,446,670
Sept.	55,797,530	50,276,020	60,140,460	43,789,000	49,208,020	49,987,000	54,515,270	50,471,870	61,074,020	57,006,430
Oct.	60,424,720	50,660,840	54,485,871	52,869,290	59,601,690	52,807,000	57,610,030	50,086,330	58,666,300	55,830,000
Nov.	53,408,660	50,660,840	51,072,259	47,600,000	51,948,000	50,722,600	55,191,700	50,779,040	52,041,780	54,956,800
Dec.	56,414,870	53,464,780	56,034,000	56,413,080	56,770,000	54,904,400	60,486,900	53,716,210	55,727,260	54,542,700
Totals	771,981,650	637,189,171	711,629,410	674,924,650	640,863,030	634,436,000	732,502,510	678,729,418	747,322,519	699,025,321

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jan.	55,503,180	61,797,170	58,434,610	**61,855,400**	57,478,450	58,440,540	52,196,730	49,352,650		
Feb.	50,819,910	54,556,227	57,763,170	59,383,290	54,607,950	**59,767,470**	53,694,400	53,675,440		
March	54,691,420	61,373,630	**67,236,650**	66,264,780	65,396,350	64,468,230	63,967,920	58,977,410		
April	56,255,340	65,687,340	**81,233,630**	69,619,100	65,618,770	63,056,840	63,323,620	61,947,620		
May	58,825,640	84,365,390	**86,826,340**	71,496,380	80,598,590	61,898,200	58,147,240	84,208,694		
June	56,770,200	79,985,540	**83,440,990**	64,663,900	65,623,330	56,368,540	53,149,810	73,144,700		
July	56,727,510	**79,346,330**	74,315,690	62,844,790	63,425,030	55,655,000	56,521,710	69,470,550		
Aug.	56,239,370	**70,377,570**	68,986,900	58,459,380	61,486,270	55,316,100	53,293,430			
Sept.	54,109,980	60,404,280	**62,270,300**	58,097,500	56,279,590	53,890,000	49,796,420			
Oct.	55,480,200	**62,403,480**	59,991,850	58,325,780	60,659,850	52,082,800	52,417,120			
Nov.	54,856,880	**58,430,700**	57,184,220	56,215,000	55,065,100	49,812,540	53,815,710			
Dec.	54,607,330	58,617,700	**61,750,390**	56,932,530	59,770,540	51,521,900	52,063,110			
Totals	664,886,960	797,345,357	**819,434,740**	**744,157,830**	**746,009,820**	**682,278,160**	**662,387,220**	**450,777,064**	**0**	**0**

Yellow indicates record monthly flow as well as record annual flow

KELLOGG TUNNEL ZINC DATA

Concentration (mg/L)

Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Jan.		86	81	79	63	70	61	72	57	68	41	46	50	53
Feb.		86	91	96	55	72	57	95	58	68	41	68	52	50
March		94	116	86	65	68	53	86	58	69	58	81	63	124
April		98	121	140	85	80	50	137	176	86	107	92	115	238
May		105	231	179	318	136	57	377	215	150	177	87	138	206
June		107	182	118	271	143	68	347	164	106	131	78	108	145
July		90	144	111	198	117	75	181	136	87	87	75	81	97.2
Aug.		87	112	92	132	94	79	130	110	86	76	66	76	
Sept.		84	107	80	107	76	81	132	107	75	66	63	68	
Oct.	59	81	100	88	99	75	70	86	70	67	63	54	52	
Nov.	66	79	88	88	104	63	57	95	71	70	55	44	52	
Dec.	67	62	78	65	76	59	61	88	69	54	49	55	50	
average	**64**	**88**	**121**	**102**	**131**	**88**	**64**	**152**	**108**	**82**	**79**	**67**	**75**	
lime usage (tons/day)		**2.59**	**3.23**	**2.76**	**4.78**	**3.24**	**2.16**	**4.31**	**3.93**	**2.46**	**2.70**	**1.99**	**1.93**	**134**
Zinc Conc. Increase/Decrease			**37%**	**-16%**	**29%**	**-33%**	**-27%**	**138%**	**-29%**	**-24%**	**-4%**	**-15%**	**12%**	
Lime Usage Increase/Decrease			**25%**	**-15%**	**73%**	**-32%**	**-33%**	**100%**	**-9%**	**-37%**	**10%**	**-26%**	**-3%**	

LIME DEMAND TRACKING

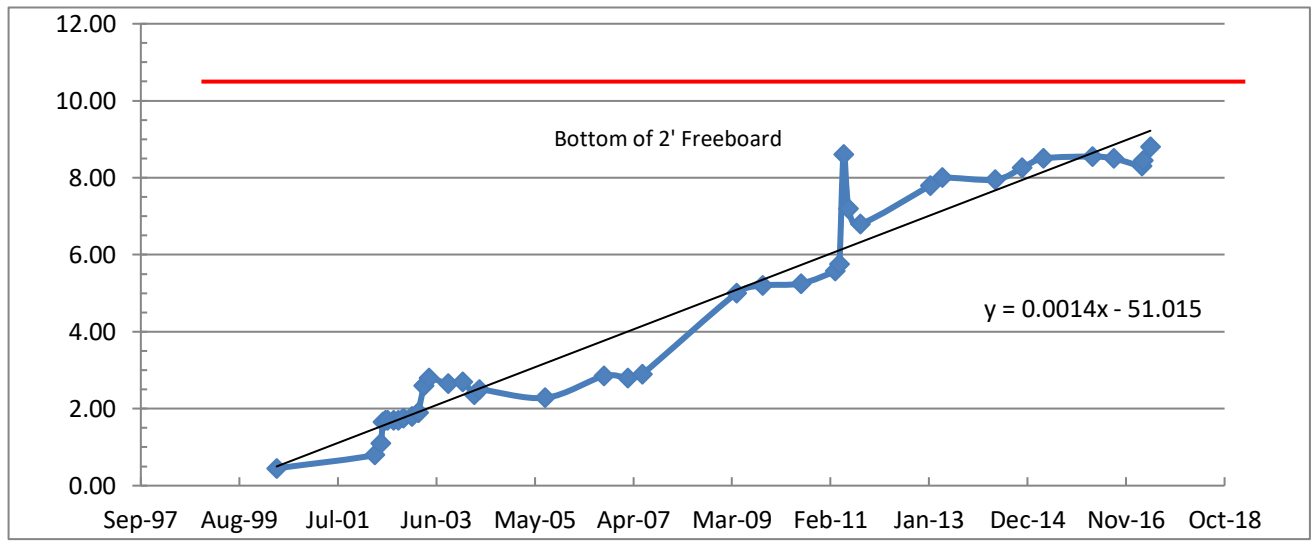
Year	Month	Lime (tons)	KT flow (mg)	Lime Demand (g/L)	
2006	Jan.	70.2	56.0	0.30	
	Feb.	69.9	51.2	0.33	
	March	96.3	56.3	0.41	
	April	107.5	72.0	0.36	
	May	235.4	72.0	0.78	peak
	June	114.6	68.3	0.40	
	July	100.4	64.0	0.38	
	Aug.	118.2	64.1	0.44	
	Sept.	38.4	54.5	0.17	
	Oct.	69.5	57.6	0.29	
	Nov.	71.3	55.2	0.31	
	Dec.	78.2	60.5	0.31	
2007	Jan.	66.0	56.3	0.28	
	Feb.	51.8	50.5	0.25	
	March	81.7	65.4	0.30	
	April	127.9	66.6	0.46	
	May	154.0	63.2	0.58	peak
	June	94.1	57.9	0.39	
	July	107.0	58.3	0.44	
	Aug.	75.8	55.3	0.33	
	Sept.	77.2	50.5	0.37	
	Oct.	62.3	50.1	0.30	
	Nov.	56.9	50.8	0.27	
	Dec.	28.1	52.0	0.13	
2008	Jan.	60.7	53.4	0.27	
	Feb.	50.2	49.3	0.24	
	March	58.0	54.6	0.25	
	April	78.3	61.7	0.30	
	May	629.3	86.7	1.74	peak
	June	388.1	82.6	1.13	
	July	155.6	66.3	0.56	
	Aug.	129.5	65.2	0.48	
	Sept.	97.2	61.1	0.38	
	Oct.	76.4	58.7	0.31	
	Nov.	64.9	52.0	0.30	
	Dec.	73.0	55.7	0.31	
2009	Jan.	70.3	50.9	0.33	
	Feb.	60.3	48.2	0.30	
	March	62.1	61.7	0.24	
	April	88.0	63.1	0.33	
	May	180.9	70.2	0.62	peak
	June	146.3	64.6	0.54	
	July	104.4	61.6	0.41	
	Aug.	94.8	56.4	0.40	
	Sept.	89.2	57.0	0.38	
	Oct.	69.4	55.8	0.30	
	Nov.	70.9	55.0	0.31	
	Dec.	47.4	54.5	0.21	
2010	Jan.	66.7	55.5	0.29	
	Feb.	51.5	50.8	0.24	
	March	49.5	54.7	0.22	
	April	50.0	56.3	0.21	
	May	58.7	58.8	0.24	
	June	58.8	56.8	0.25	
	July	79.7	56.7	0.34	peak
	Aug.	54.7	56.2	0.23	
	Sept.	63.8	54.1	0.28	
	Oct.	54.6	55.4	0.24	
	Nov.	54.1	55.8	0.23	
	Dec.	64.5	54.6	0.28	
2011	Jan.	77.1	61.7	0.30	
	Feb.	69.8	54.6	0.31	
	March	94.7	61.4	0.37	
	April	119.6	65.6	0.44	
	May	433.0	84.4	1.23	peak
	June	328.4	80.0	0.98	
	July	159.9	79.3	0.48	
	Aug.	120.8	70.3	0.41	
	Sept.	92.4	60.4	0.37	
	Oct.	97.8	62.4	0.38	
	Nov.	66.8	58.4	0.27	

LIME DEMAND TRACKING

Year	Month	Lime (tons)	KT flow (mg)	Lime Demand (g/L)	
	Dec.	65.2	58.6	0.27	
2012	Jan.	74.9	58.4	0.31	
	Feb.	56.8	57.7	0.24	
	March	85.6	67.2	0.31	
	April	194.8	81.2	0.57	
	May	261.6	86.8	0.72	peak
	June	179.9	83.4	0.52	
	July	140.8	74.3	0.45	
	Aug.	118.0	68.9	0.41	
	Sept.	95.6	62.2	0.37	
	Oct.	89.0	60.0	0.36	
	Nov.	73.3	57.2	0.31	
	Dec.	74.8	61.8	0.29	
2013	Jan.	57.2	61.9	0.22	
	Feb.	64.5	59.4	0.26	
	March	71.7	66.2	0.26	
	April	96.9	69.6	0.33	
	May	126.2	71.5	0.42	peak
	June	94.1	64.6	0.35	
	July	91.2	62.8	0.35	
	Aug.	89.2	58.4	0.37	
	Sept.	65.2	58.0	0.27	
	Oct.	59.3	58.3	0.24	
	Nov.	50.9	56.2	0.22	
	Dec.	49.9	56.9	0.21	
2014	Jan.	38.7	57.4	0.16	
	Feb.	35.8	54.6	0.16	
	March	73.1	65.3	0.27	
	April	101.1	65.6	0.37	
	May	208.3	80.6	0.62	peak
	June	127.4	65.6	0.47	
	July	87.5	63.4	0.33	
	Aug.	81.1	61.5	0.32	
	Sept.	63.7	56.3	0.27	
	Oct.	53.1	60.6	0.21	
	Nov.	62.8	55.0	0.27	
	Dec.	54.6	59.7	0.22	
2015	Jan.	51.7	58.4	0.21	
	Feb.	61.0	59.7	0.24	
	March	83.1	64.4	0.31	
	April	94.8	63.0	0.36	peak
	May	73.3	62.0	0.28	
	June	69.7	65.3	0.26	
	July	83.6	55.6	0.36	
	Aug.	58.4	55.3	0.25	
	Sept.	55.3	53.9	0.25	
	Oct.	56.8	52.0	0.26	
	Nov.	46.3	49.8	0.22	
	Dec.	43.7	51.5	0.20	
2016	Jan.	24.2	52.2	0.11	
	Feb.	33.4	53.6	0.15	
	March	66.0	64.0	0.25	
	April	86.1	63.3	0.33	
	May	96.9	58.1	0.40	peak
	June	69.9	53.1	0.32	
	July	68.2	56.5	0.29	
	Aug.	53.7	53.2	0.24	
	Sept.	53.6	49.8	0.26	
	Oct.	49.8	52.4	0.23	
	Nov.	48.7	53.8	0.22	
	Dec.	48.3	52.0	0.22	
2017	Jan.	51.7	49.3	0.25	
	Feb.	46.9	53.7	0.21	
	March	140.0	59.0	0.57	
	April	174.5	61.9	0.68	
	May	246.6	84.2	0.70	peak
	June	143.5	73.1	0.47	
	July	141.6	69.4	0.49	

Bunker Hill Sludge Pond
Sludge Staff Gauge Reading Summary

Date	Sludge Level (feet)	Estimated Sludge Elevation	Estimated Remaining Height to Road (feet)
05/19/00	0.45		
04/16/02	0.80		
05/28/02	1.10		
06/13/02	1.65		
07/01/02	1.70		
07/16/02	1.70		
08/27/02	1.70		
10/01/02	1.70		
11/06/02	1.75		
01/06/03	1.80		
02/19/03	1.90		
02/19/03	1.90		
03/31/03	2.60		
04/01/03	2.60		
05/07/03	2.80		
09/19/03	2.65		
01/01/04	2.70		
03/22/04	2.36		
04/29/04	2.50	2311	11.0
08/09/05	2.28	2310.8	11.2
09/30/06	2.85	2311.4	10.7
03/20/07	2.80	2311.3	10.7
6/30/2007	2.90	2311.4	10.6
4/30/2009	5.00	2313.5	8.50
10/31/2009	5.20	2313.7	8.30
7/31/2010	5.25	2313.8	8.25
3/31/2011	5.58	2314.1	7.92
4/30/2011	5.75	2314.3	7.75
5/30/2011	8.60	2317.1	4.90
7/5/2011	7.20	2315.7	6.30
9/26/2011	6.80	2315.3	6.70
2/4/2013	7.80	2316.3	5.70
4/30/2013	8.00	2316.5	5.50
5/12/2014	7.95	2316.5	5.55
11/20/2014	8.26	2316.8	5.24
4/20/2015	8.50	2317.0	5.00
4/1/2016	8.55	2317.1	4.95
9/1/2016	8.50	2317.0	5.00
3/20/2017	8.30	2316.8	5.20
3/28/2017	8.45	2317.0	5.05
5/18/2017	8.80	2317.3	4.70
7/31/2017	8.75	2317.3	4.75



6282	**8.30**	**Total Change, Days and Feet**
Note 3	0.48	Average Rise Per Year (Includes Lined Pond Cleanout), feet
	4.75	Estimated average remaining total height to perimeter road, feet
	2.0	Assumed desired end-of-life freeboard, feet
	2.8	Estimated available storage height, feet
	5.7	**Estimated Remaining Life (years)**
	1/28/2023	

Notes:

1) Pond perimeter road centerline elevation = 2322.0 feet from CIA as-builts Drawing C-28

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 06, 2017 Inspected By: Gary Coast, Steve Brunner

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting Ok
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	No debris
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff guage needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.37 mgd (1646 gpm), pH at this time is 2.70

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

No debris or sediment was collected from the mine discharge flume during this cleaning event

No contact was made with any mine personnel during this cleaning event.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 13, 2017 Inspected By: Gary Coast, Steve Brunner

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	Removed small amount of wood debris from rack
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.44 mgd (1700 gpm), pH at this time is 2.73.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

No sediment was collected from the mine discharge flume during this cleaning event.

August pigging event flow reduction letter was submitted to the mine operating personnel.

Discussions will continue with the mine operator in regards to the pigging flow request.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 20, 2017 Inspected By: Gary Coast, Steve Brunner

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	No debris ok
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.40 mgd (1666 gpm), pH at this time is 2.78.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

No debris or sediment was collected from the mine discharge flume during this cleaning event.

Continued discussions with the mine operator in regards to the pigging flow request.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 27, 2017 Inspected By: Gary Coast, Gary Fulton

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	No debris ok
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.39 mgd (1660 gpm), pH at this time is 2.95.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

No debris or sediment was collected from the mine discharge flume during this cleaning event.

Discussed the KT daily flow reductions for August 1-3 pigging event with Dave Kriedman.

Also discussed the KT flow reductions with the miner (Mitch) that will be responsible for the flow.